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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,663	08/06/2001	William M. Ayers	901715-ETT	3905

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EXAMINER	
MAYEKAR, KISHOR	
ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/720,663	AYERS, WILLIAM M.	
	Examiner	Art Unit	
	Kishor Mayekar	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-21 and 32-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-21 and 32-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to claims 11-21 and 32-50 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. Claims 45-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 45, the claim is indefinite and confusing to the claimed subject matter because the claim depends from itself.

In claim 46, it's because of the confusing dependent claim 45.

In claim 47, the recited limitations "a first microwave transparent tube" and "a second microwave transparent tube" are confusing as to the relation of the recited limitations to the microwave transparent tube in claim 41 as whether they are part of the microwave transparent tube recited in claim 41.

Claim Rejections - 35 USC § 103

3. Claims 11-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moisan et al. (6,224,836) in view of Mutterer, Jr. et al. (6,258,329), Warmbier et al. (5,540,886) and/or Lautenschlager et al. (6,033,912). MOISAN's invention, a reference cited in the last Office action, is directed to a device for exciting a gas by a surface wave plasma. Moisan discloses in Fig. 6 that the device comprises a source of microwave radiation **56**, a tube **40** made of a dielectric material such as silica through which tube a gas column to be excited flows, an enclosure comprised of hollow structure **24** and/or sleeves **42** and **44** made of an electrically conductive material (metal), a manifold **60**, a treatment unit **66**, a dehydration unit **68**, and sampling cells **78** and **80**. Moisan contemplates that the device can be used for the purifying of gaseous effluents (col. 4, lines 15-17). As to the recited supply vessel, since Moisan teaches the use of the device for the purifying of gaseous effluents and in Fig. 6 the gaseous effluents are introduced into the device via one of its end, the gaseous effluents have to be introduced from a supply vessel. The differences between Moisan and the above claims are that Moisan is silent on the use of metal enclosure as the microwave reflecting enclosure and the provision of a gas concentration sensor and a feed-back control system. Mutterer, another reference cited in the last Office action, shows in a system for carrying out

microwave assisted chemical reactions that cavities **12** and attenuator **13** are formed of structural metals that reflects microwaves (col. 4, lines 5-8) and a vessel 16 for holding materials in the cavity is of microwave transparent material while microwaves from the source are applied thereto (col. 4, lines 64-67). Mutterer also shows the use of a control system **20** operatively associated with sensor(s) **17** (col. 4, lines 35-57). Both Warmbier and Lautenschlager show the use a gas concentration sensor and a feed-back control system in an apparatus for processing gases with a microwave (see Fig. 1 in Warmbier and abstract in Lautenschlager).

As to the first difference, since Mutterer discloses the use of metals that reflects microwaves, it appears that Moisan's metal enclosure possesses the recited property in absence of evidence to the contrary.

As to the latter difference, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Moisan's teachings as suggested by Mutterer, Warmbier and/or Lautenschlager because this would result in efficiently controlling the process on a continuous basis. Further, it has been held the motivation to make a specific structure is always related to the properties or uses one skilled in the art would

expect the structure to have, *In re Newell* 13 USPQ 2d 1248, *Fromson v. Advance Offset Plate* 225 USPQ 26; *In re Gyurik* 201 USPQ 552.

As to the subject matter of claim 16, material or article worked upon does not limit apparatus claims, see MPEP 2115.

As to the subject matter of claim 17, the selection of any of known equivalent vapor removal devices would have been within the level of ordinary skill in the art.

4. Claims 32-34, 37-44 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moisan '836 in view of Mutterer '329, Warmbier '886 and/or Lautenschlager '912. The further difference between the references as applied above and the above claims is the provision that the reaction chamber is adapted to generate the gas under pressure. However, since Moisan's device is not operated under a vacuum or at atmospheric pressure and since the gaseous effluent is introduced into the device via one of its end and has to be under pressure, Moisan's reaction chamber would also be under pressure in absence of evidence to he contrary.

As to the subject matter of claim 40 or 44, material or article worked upon

does not limit apparatus claims, see MPEP 2115.

As to the subject matter of claim 49, Moisan reaction chamber have the recited three portions.

5. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moisan '836 in view of Mutterer '329, Warmbier '886 and/or Lautenschlager '912 as applied to claims 32-34, 37-44 and 49 above, and further in view of Ayers (US 5,158656), another reference cited in the last Office action. Moisan as applied above discloses that the device for processing gases for the purpose of purifying them. The difference between the references applied above and the instant claims is the provision of a semiconductor device fluidly coupled to the manifold. Ayers shows the above limitation after the purification. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings because it has been held that the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have, *In re Newell* 13 USPQ 2d 1248, *Fromson v. Advance Offset Plate* 225 USPQ 26; *In re Gyurik* 201 USPQ 552.

6. Claims 47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moisan '836 in view of Mutterer '329, Warmbier '886 and/or Lautenschlager '912 as applied to claims 32-34, 37-44 and 49 above, and further in view of WO 95/11750. The difference between the references applied above and the instant claims are each of the limitation in claims 47 and 50.

As to claim 47, WO '750 shows the limitation (Figs. 1 and 2 for the characters 15 and 25). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by WO '750 because it has been held that the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have, *In re Newell* 13 USPQ 2d 1248, *Fromson v. Advance Offset Plate* 225 USPQ 26; *In re Gyurik* 201 USPQ 552. The same is applied to claim 50 when the fluid to be treated is liquid (page 11, lines 1-14).

7. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moisan '836 in view of Mutterer '329, Warmbier '886 and/or Lautenschlager '912 as applied to claims 32-34, 37-44 and 49 above, and further in view of Easly et al.

(US 3,889,182). Moisan as applied above further discloses the use of the hollow structure 24 made of an electrically conductive material such as metal (col. 4, lines 55-58). The difference between the references applied above and the instant claims are the provision of steel hollow structure and a microwave transparent window.

As to the former, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings because the selection of any of known equivalent metals would have been within the level of ordinary skill in the art.

As to the latter, Easly shows the use of a transparent window (fig. 1 and col. 2, lines 33-35). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by Easly abecause this would result in allowing the microwave to pass into the hollow structure.

Response to Arguments

8. Applicant's arguments filed 29 June 2006 have been fully considered but they are not persuasive because of the new ground of rejections as set forth in

the paragraphs above.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to

the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kishor Mayekar
Primary Examiner
Art Unit 1753